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Keeping older patients healthy and safe as they travel

For older patients, the trip of a lifetime can be fraught with health hazards. There's much you can do to keep them harm free.

PRACTICE RECOMMENDATIONS

› Advise older adults to prepare a health travel kit containing all their medications and medical supplies, a list of chronic conditions, and emergency contact information, and to pack it in their carry-on luggage. **C**

› Instruct patients who will be airborne for ≥4 hours to stay hydrated, avoid alcohol and sedating drugs, and either do seated calf exercises or get up and move about the cabin periodically. **B**

› Remind patients who will spend time in developing countries to drink only bottled beverages, eat only hot food and fruit that can be peeled, and avoid ice cubes and food from street vendors. **B**

Strength of recommendation (SOR)

- A** Good-quality patient-oriented evidence
- B** Inconsistent or limited-quality patient-oriented evidence
- C** Consensus, usual practice, opinion, disease-oriented evidence, case series

CASE ▶ Larry R, a 77-year-old retired college professor, comes in for a checkup because he is planning a trip to Kenya—on a safari he describes excitedly as “the trip of a lifetime.” He’ll be going with a group, but before he signs on he wants to be sure you think he can manage the tour’s “moderate pace.” He also thinks that he’ll “need to get some shots.”

The patient is overweight (BMI 29) and smokes a pipe daily. He has a history of hypertension, hyperlipidemia, and mild osteoarthritis in both knees and hips, all of which are well controlled.

What would you advise Professor R about the health care preparations needed for his big trip?

Chances are you have patients like Professor R—retired and relatively healthy, and endowed with a sense of adventure and the financial resources that make it possible to visit distant lands. With the nation’s 78 million baby boomers starting to reach retirement age—the oldest cohort turned 65 in 2011—you’re likely to see increasing numbers of older patients with plans for international travel in the years ahead.¹

Like their younger counterparts, older people travel for a variety of reasons: Some have planned for decades to take the “trip of a lifetime” when they retire. Others plan longer excursions, sometimes referred to as an adult “gap year,” to relive a long-ago experience, volunteer in an underdeveloped country, or hike and bird watch in a rainforest. Many more are immigrants who travel to visit relatives or friends in their country of origin, usually a lower-income, environmentally depressed locale with a higher incidence of infectious diseases like malaria, typhoid, and hepatitis A.²

And while the older traveler will have to take many of the same steps to stay healthy as his or her younger counterpart, it is the older traveler who is more likely to have chronic conditions and special needs that require additional prepa-



Remind patients to take an ample supply of both prescription and OTC drugs in their original containers and to keep them in a kit in a carry-on bag.

ration. With careful planning, however, even those with decreased faculties, ranging from impaired vision or hearing to mild cognitive impairment, can safely travel abroad.³

A pretravel visit is your opportunity to assess the patient's fitness to make the trip being planned, ensure optimal management of chronic conditions while traveling, and identify (and recommend steps to mitigate) travel-related risks.

Morbidity and mortality abroad: A review of the risks

Although much pretravel advice centers on the prevention of tropical infectious diseases, such infections account for a very small percentage of deaths of Americans outside of the United States.¹ In fact, the major health risks facing older adults traveling abroad are similar to those they face at home: Cardiovascular events are responsible for the preponderance of deaths and for half of all travel-related illnesses.¹

International travel can be physically demanding for older individuals and injuries are common, accounting for a large proportion of deaths of Americans overseas⁴ and an esti-

ated 25% to 38% of travel-related incidents.^{1,5} A third of injury-related deaths of US citizens traveling abroad involve traffic accidents, followed by homicide (17% of cases) and drowning (13%).^{1,5} Thus, injury prevention and management of chronic conditions are key issues to address in a pretravel consult.

Even small steps help safeguard older travelers

Older patients planning to travel abroad should schedule an appointment at least 4 to 6 weeks before their departure.² Ask about the locale, political and environmental climate, length of stay, location and type of accommodations, accessibility to health care, and activities planned,⁶ which will enable you to offer both general and destination-specific health and safety tips. When advising older adults with complex comorbidities and/or particularly high-risk itineraries, referral to a travel medicine specialist should be strongly considered.

■ **Exercise.** Encourage older patients to initiate a graduated exercise program, starting several months before the trip.³ Even a modest improvement in endurance, strength,

Advise patients not to buy OTC or prescription medications outside of the United States.

and flexibility can reduce the likelihood of injury.

■ **Luggage.** The right luggage can benefit your patients. Recommend that older patients purchase lightweight suitcases with wheels, which are easier to maneuver in and out of airports⁶ and less likely to cause muscle strain or musculoskeletal injury.

■ **Insurance.** If an individual becomes ill or sustains an injury overseas, the right insurance can be crucial. Advise older adults to review their health insurance policy to see whether it provides overseas coverage. If not, suggest they consider a short-term supplemental policy to cover medical care and evacuation, if needed. Recommend trip cancellation insurance, as well.

Patients should pack pills, medical supplies in a carry-on kit

Encourage all older travelers to compile a personalized travel health kit equipped with common over-the-counter (OTC) medications, prescription drugs, and any personal medical supplies they'll need, such as a continuous positive airway pressure (CPAP) machine.^{1,3} Remind patients to take an ample supply of both prescription and OTC drugs, each in its original labeled container.^{3,6} Buying medications outside the United States is not advisable, given the variation in international regulatory standards. Stress the importance of keeping the kit in a carry-on bag.

The health kit should also include descriptions of the patient's preexisting medical conditions, which you or a nurse or medical assistant in the practice can help to prepare; a list of prescription drugs he or she takes (using both the generic and brand names); and a copy of a recent electrocardiogram, if available, along with contact information in case of an emergency.^{1,3,6} A patient who uses injectable medication, such as insulin, should obtain a letter (on the practice's letterhead) from the prescribing physician and be prepared to show the letter to airport security personnel.^{3,6}

Staying safe in the air

The lower barometric and oxygen partial pressures found in aircraft cabins, which

are pressurized at 5000 to 8000 feet, can affect both the respiratory and cardiovascular systems of older adults—particularly those with pulmonary or cardiac disorders.^{6,7} Individuals who do not routinely require oxygen and are able to walk the equivalent of one city block or climb one flight of stairs without shortness of breath should have little trouble compensating for the reduced oxygen in the cabin.³ Patients with stable heart failure, including New York Heart Association grades III and IV, can tolerate flights of up to one hour without additional oxygen.⁷

Advise older adults who will require oxygen that they are not permitted to bring their own oxygen canisters onboard an airplane.¹ In-flight oxygen needs to be ordered at least 7 days before departure, and there may be a charge.⁷ Most airlines have medical consultants available to help patients who will need oxygen or other medical provisions.⁷ In addition, tour companies or travel consultants can help older patients with special needs ensure that they have access to oxygen or other medical supplies at their destination.

Thrombosis—the other in-flight risk

Sometimes referred to as “economy class syndrome” or “traveler's thrombosis,” the venous stasis of air travel is responsible for a 3-fold increase in the risk of venous thromboembolism (VTE).⁸ While fatal pulmonary embolism is rare, duration of travel and risk of VTE follow a dose-response relationship, with each 2-hour increase in flight time conferring an additional 18% risk.⁸ Other risk factors for VTE include varicose veins, metastatic cancer, major surgery within the past 2 weeks, prior VTE, and BMI >40. Advanced age increases travelers' risk of VTE, as well.^{7,8} The absolute risk, however, is low.

Among travelers older than 50 years, symptomatic VTE occurs at an estimated rate of one in 600 for flights >4 hours and one in 500 for flights >12 hours.^{9,10} While there is no evidence that first-class seating lowers the risk, there are preventive measures that patients can take.¹¹

Tell patients to stay hydrated, drinking plenty of fluids but avoiding alcohol during flights of ≥4 hours' duration. Sedating drugs should be avoided, as well. Advise anyone

Travel and health: Resources for patients and physicians

Access-able Travel Source Web site provides information for older adult travelers with special needs who need help traveling with oxygen or getting around despite decreased mobility (www.access-able.com/tips/).

American Diabetes Association publishes detailed information about traveling with diabetes (<http://www.diabetes.org/living-with-diabetes/know-your-rights/discrimination/public-accommodations/air-travel-and-diabetes/>).

Bureau of Consular Affairs publishes information regarding VISA and security requirements at various destinations and travel warnings (http://travel.state.gov/about/about_304.html).

Centers for Disease Control and Prevention publishes "The Yellow Book"—a reference for clinicians who advise international travelers about health risks. There is also a range of other travel-related information on its Travelers' Health Web site (www.cdc.gov/travel/).

International Travel Medicine Society provides a global travel clinic directory (<http://www.istm.org/WebForms/SearchClinics/Default.aspx?SearchType=Advanced>).

Transportation Security Administration Web site provides information on what can be brought on-board a plane. See "Can I bring my ... through the checkpoint?" (http://apps.tsa.dhs.gov/mytsa/cib_home.aspx).

Travel Health Online offers a list of medical providers around the world (www.tripprep.com/scripts).

World Health Organization's Travel and Health Web site provides free access to selected chapters of its book, "International Travel and Health 2012," as well as interactive maps, information about infectious diseases and food safety, and more (www.who.int/ith/en/).



Tell patients to order in-flight oxygen at least 7 days before departure and that there may be a charge.

planning a long flight to either do seated exercises (intermittent calf contractions) or to periodically get up and walk about the cabin.⁹ You may also want to recommend that patients purchase below-the-knee elastic compression stockings to help decrease venous stasis.¹²

There is no evidence to recommend the use of aspirin to prevent VTE.^{12,13} But you may consider prescribing a single 40-mg dose of enoxaparin for a patient who has multiple risk factors and will be airborne for >6 hours.¹³

Promote safety and comfort on the ground

It is crucial to remind all travelers about the risks associated with traveling in motor vehicles in other countries. Remind patients to

wear seat belts whenever they're available; exercise caution regarding public transportation, which may be overcrowded and have an increased risk of pickpockets and robbery; and avoid riding on motorcycles and scooters. If they do opt to ride on a scooter, tell them that it's imperative that they wear a helmet.

Minimize the effects of jet lag

Travelers of any age may experience jet lag, which occurs when the individual's circadian clock cannot keep pace with travel across time zones.¹⁴ Notably, however, older people appear to suffer less than their younger counterparts.³ Patients traveling great distances are not likely to avoid jet lag completely, of course. Recommend the following strategies:

■ **Start adjusting your schedule** in the week before you depart, gradually shifting

TABLE

Which travel-related vaccines does your patient need?

Disease	Type of vaccine	Primary course	Booster/ follow-up	Route	For which destinations?
Vaccines for all travelers					
Hepatitis A*	Killed virus	2 doses (6-18 mo apart) [†]	None	IM	All
Hepatitis B*	Recombinant viral antigen	3 doses (0, 1, 6 mo)	None	IM	All
Influenza	Inactivated viral	Single dose	Annually	IM	All
Typhoid	Capsular polysaccharide	Single dose	2-3 y	IM	All
	Live attenuated bacteria	4 doses (0, 2, 4, 6 mo)	5 y	Oral	
Vaccines for travelers to select destinations					
Japanese encephalitis	Inactivated viral	2 doses (28 d apart)	Unknown	IM	Rural Asia [‡]
Meningococcus	Quadrivalent conjugated polysaccharide	Single dose	>10 y	IM	Sub-Saharan Africa; Saudi Arabia
Polio	Inactivated viral	Single dose if patient had childhood series	None	SC; IM	Anyplace where polio still occurs
Rabies	Inactivated cell culture viral	3 doses (0, 7, 21-28 d)	None unless exposure occurs	IM	
Yellow fever	Live attenuated virus	Single dose	10 y	SC	Sub-Saharan Africa; tropical South America

IM, intramuscular; SC, subcutaneous.

*A combined hepatitis A/B vaccine is approved for use in older adults.

[†]Second dose may be delayed up to 8 years without diminished efficacy.

[‡]Required only for prolonged stays in rural areas of Asia.

Adapted from: Mandell GL, Bennett JE, Dolin R, eds. *Principles and Practice of Infectious Diseases*. 7th ed. Philadelphia, Pa: Elsevier; 2010.

➤ Recommend that patients who will be crossing multiple time zones take melatonin (0.5-5 mg) to promote sleep and decrease jet lag.

2 hours toward congruence with the time zone at your destination.¹⁴

■ **Help reset your circadian rhythm** through exposure to bright light, in the morning after eastward travel and in the evening after westward travel.¹⁴

■ **Take it easy at first.** An itinerary that accounts for initial fatigue is an important nonpharmacologic management strategy.¹⁴

■ **Avoid sedating medications,** including antihistamines, tranquilizers, anti-

motion sickness agents, and benzodiazepines, as these can increase falls and confusion in older adults and make jet lag worse.³

■ **Take melatonin.** A dose of 0.5 to 5 mg, taken at bedtime, may promote sleep and decrease jet lag symptoms in travelers crossing multiple time zones.¹⁴

Prepare patients to cope with heat ...

Unusually hot, humid weather increases morbidity and mortality in the elderly,^{3,15} and

older patients traveling to such climates will need to take extra precautions. Strenuous exercise in the heat should be avoided, because both thirst and the capacity to conserve salt and water decrease with age.¹⁶ Acclimatization is helped by rest, air-conditioning, loose cotton clothing, brimmed hats, and cool baths or showers.³ Diuretics may have to be adjusted for fluids lost by increased perspiration, and a discussion about a dose reduction should be included in the pretravel consult for patients who take diuretics and will be traveling to a hot, humid climate.

... and increases in altitude

For older adults, exposure to a moderate altitude (≤ 2500 meters) is initially associated with hypoxemia and a reduced exercise capacity, until acclimatization occurs by Day 5.^{17,18} Although older adults generally acclimatize well, advise them to limit their activities for the first few days at a higher altitude. This is especially important for patients with coronary artery disease (CAD).

To further ease the effects of a higher altitude, advise patients to drink plenty of fluids, but little or no alcohol.¹⁹ Review the medications of an older patient who will be spending time at very high altitude. Rarely, antihypertensive medication may need to be adjusted. The body compensates for lower oxygen with a faster heart rate, and some antihypertensives may interfere with this compensatory mechanism.³

Precautions (and prophylaxis) may prevent travelers' diarrhea

Diarrhea—among the most common travel-related conditions²⁰—affects an estimated 30% to 70% of international travelers.² The incidence is highest among visitors to developing countries. Most (80%-90%) of travelers' diarrhea is due to bacterial infection,²¹ 10% of cases are caused by parasites, and 5% to 8% by viral infection.^{2,22}

Although increasing age lowers the risk of travelers' diarrhea,¹ older patients traveling to developing areas should be cautioned to only eat food that is served hot or fruit they can peel themselves; drink only bottled water and sealed liquids; and avoid salad, ice,

and food from street vendors.¹ Studies have shown, however, that tourists often get diarrhea despite these safety measures.²

■ Treatment and prophylaxis. Prophylactic antibiotics can prevent travelers' diarrhea. But the increased sun sensitivity, drug-drug interactions, and gastrointestinal (GI) adverse effects associated with antibiotics limit their usefulness. Prophylaxis is indicated, however, for older adults for whom the complications of dehydration would likely be so severe that the benefits of using antibiotics to prevent diarrhea clearly outweigh the risks.²³

Fluoroquinolones are a first-line treatment for travelers' diarrhea. But increasing microbial resistance to this class of drugs, especially among *Campylobacter* isolates,²⁴ may limit their usefulness in some destinations.²⁵ Azithromycin is recommended in such cases, and has been shown to be equally effective.^{26,27} Single-dose therapy is well established with fluoroquinolones, but the best regimen for azithromycin (1 vs 3 days) is still under evaluation.^{28,29} Along with instructions on when to take an antibiotic, travelers should be given prescriptions for treatment of travelers' diarrhea before the start of their trip. Suggest that patients purchase oral rehydration packets to take on their trip, and stress the importance of using them and staying hydrated if diarrhea develops.

Decreased upper GI acidity due to acid-blocking medications such as proton-pump inhibitors can increase the risk for many infections, including salmonella and cholera. Patients taking such medications should be made aware of the risk, and the risks vs benefits of temporarily stopping them should be discussed. Vaccination against cholera should not routinely be recommended.^{29,30}

Vaccines and pills protect against preventable diseases

An impending trip abroad also presents an opportunity to review the patient's immunization status, catch up on recommended vaccines, and determine whether any additional vaccinations are needed.

■ Herpes zoster (HZ). Patients older than 60 years should receive a single dose of the HZ



Patients who will be traveling to parts of sub-Saharan Africa should be vaccinated against meningococcal infection.

➤ **All adults who are traveling to areas where poliomyelitis cases are still reported should receive another dose of inactivated polio vaccine.**

vaccine, whether or not they have a history of this condition. Because this is a live virus-containing vaccine, however, it should not be given to anyone who is immunocompromised.³¹

■ **MMR booster.** Adults born before 1957 can be considered immune from both measles and mumps, but not rubella. There is no data on immunization to rubella, but guidelines do not recommend MMR vaccination in the elderly.¹

■ **Pneumococcal polyvalent-23 (PPV-23).** One dose of the PPV-23 vaccine is indicated for all adults at age 65. This is especially important for travelers, as the prevalence of pneumococcal disease is likely higher in crowded, urban environments within less developed countries.³¹

■ **Tetanus.** Although tetanus is mainly a disease of the elderly, only 45% of men ages 70 years or older and 21% of women in this age group were found to have protective antibodies.^{1,32} In 2011, the Advisory Committee on Immunization Practices (ACIP) recommended one dose of tetanus and diphtheria toxoid (Td) every 10 years, with a single dose of tetanus toxoid, diphtheria toxoid, and acellular pertussis (Tdap) vaccine given in place of Td for adults older than 65.³³ Despite ACIP's recommendation, the vaccine's use in adults 65 years and older is an off-label indication, as Tdap is only approved for use in those 11 to 64 years of age.³³

Additional vaccines are recommended for travelers, with some indicated for all travelers and others that are destination-specific (TABLE).

Meds and safety measures can minimize malaria risk

The risk of acquiring malaria differs significantly among travelers, based on destination, duration and type of travel, and season. Choice of antimalarial agents (eg, atovaquone/proguanil, chloroquine, doxycycline, mefloquine, and primaquine) should be made on an individual basis after considering these factors, as well as the resistance patterns of the countries on the patient's itinerary, his or her medical history, and the adverse effects profile of potential agents. Because many older adults take multiple medications, the possibility of drug-drug interactions must

be considered.¹ You'll find destination-specific recommendations on malaria prevention on the Centers for Disease Control and Prevention's Travelers' Health Web site, listed in "Travel and health: Resources for patients and physicians" on page 19. For guidance on the best drug to prescribe, you can also consult a travel medicine specialist.²

■ **Patients should be mindful of mosquitos.** Stress the importance of preventing mosquito bites (as much as possible). Advise patients traveling to mosquito-infested areas to use insect repellents containing 30% N-diethyl-metaltoluamide (DEET) and permethrin-treated clothing.³⁴ Tell them, too, to wear long sleeves, pants, and footwear that provides full coverage.³⁵ Ensuring that sleeping areas are properly screened or air-conditioned will further reduce the likelihood of mosquito bites.³⁶

CASE ➤ After seeing the chief complaint listed as "Traveling to Kenya" on Professor R's chart, you quickly review the CDC's Travelers' Health Web site. You encourage him to stay with his tour group and to wear a seatbelt whenever possible. You also review how to make a personalized travel health kit, and encourage him to register with the Smart Traveler Enrollment Program (STEP) (detailed at <https://step.state.gov/rep>) before leaving for the safari. You strongly suggest that he consider purchasing additional medical evacuation insurance, as well.

Given the prevalence of travelers' diarrhea, along with dengue and malaria, in Kenya, you review food and water safety and avoidance of insect-transmitted diseases with the patient, and write a prescription for ciprofloxacin to be taken if he develops diarrhea. Professor R is not at high risk for VTE, but you encourage him to stay hydrated, avoid sedating medications, and be diligent about mobilization during lengthy flights. You recommend melatonin for jet lag.

To adjust to the heat, you recommend that he avoid strenuous exercise in the first few days and drink sufficient fluids throughout the trip. You administer the Tdap vaccine, an adult polio booster, and the hepatitis A vaccine, verify that he has received his pneumococcal and influenza vaccines, and pre-

scribe an antimalarial medication.

And as you walk him toward the door, you offer him one final piece of advice: Take plenty of pictures. **JFP**

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Advise travelers to consider purchasing supplemental medical insurance, medical evacuation coverage, and trip cancellation insurance.



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